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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Nithyalakshmi Sampathkumar

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PHILADELPHIA, PA 19104-2891

EXAMINER

LUDWIG, MATTHEW J

ART UNIT

PAPER NUMBER

2178

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/606,340	Applicant(s) SAMPATHKUMAR ET AL.	
	Examiner Matthew J. Ludwig	Art Unit 2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to the RCE filed 11/16/2006.
2. Claims 1-3 and 5-22 are pending in the application. Claims 1, 7, and 21, are independent claims.
3. Claims 1-3 and 5-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Evangelos Lotsakis have been withdrawn pursuant to applicant's amendment.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 1, 7, and 21, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

In reference to independent claims 1, 7, and 21, the claims recite the phrase '*adding the XML schema definition to a collection, determining if the XML document has forms or structures that are unincluded in the XML schema definition, and if so, modifying the XML schema definition based on a second XML document*'. The examiner would like to point out the term XML document and it's meaning within the claims and within the specification. The claim language seems to point to two different documents. The first document is input to the XSD inference engine and processed to generate an XSD. The XSD is added to a collection. A

determination is made as to whether or not the same XML document has forms or structure unincluded in the XSD. It seems to indicate the first document is reprocessed yet no description of this takes place in the specification. Finally, a modification takes place based on a second XML document. No explanation is contained within the claim language as to how the second XML document determines a modification is to be made.

The specification, on page 14, states, 'If the SML instance document used in creating the schema has additional forms or structures not included when the schema was created, an additional XML instance document can be read in the first pass. This seems to indicate two separate documents examined in a first pass. Furthermore, on page 22, Figure 4 is described as the general operations of the system. The system seems to describe a first document XML document1, a second document XML document2 which is combined with XSD to come with a refined XSD. No mention of the second XML document being combined with the XSD is mentioned in the claims. Therefore, a doubt arises as to how the comparison is made with multiple XML documents and XML schema definitions based on the presently claimed language and the support found in the specification.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1, 7, and 21, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

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In reference to independent claims 1, 7, and 21, the claims recite the phrase '*adding the XML schema definition to a collection, determining if the XML document has forms or structures that are unincluded in the XML schema definition, and if so, modifying the XML schema definition based on a second XML document*'. It is unclear to the Examiner how the 2nd document creates a modified schema definition. The first XML document is examined for forms or structure unincluded in the XML schema definition; however, it is unclear how the first document is not shown in figure 4 as being reprocessed to find forms or structures that are unincluded in the XML schema definition and the 2nd XML document seems to be combined with the XSD prior to the XSD inference engine but it is not clear in the claim language what document is being analyzed to modify the XSD.

Claim Objections

8. Claims 1, 7, and 21, recite the word 'unincluded' when describing the determination of forms or structures of an XML document in the XML schema. The specification recites the phrase 'not included' on page 14, [0039] when explaining the step corresponding to the claim limitation. The Examiner recommends changing the word '*unincluded*' to '*not included*' so the phrase corresponds to the specification.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-3, 5-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evangelos Kotsakis, 'XSD: A Hierarchical Access Method for Indexing XML Schemata', Copyright 2002, pages 4: 168-201 in view of Feng US Pat. Pub. US 2004/0083218, filed (10/23/2002).

In reference to independent claim 1, Kotsakis teaches:

A DCS matches a parameterized path expression if there is at least one simple path in the DCS which matches the parameterized path expression. If a matching path is returned by algorithm, then the parameterized path expression is matched against the DCS (compare to 'XML document having attribute and type information'). See page 180, Definition 3.6 through 3.9.

A merger DCS depicts a generic XML schema which combines two or more simpler DCSs. The introduction of the concept of merger DCS aims at limiting the initial search space by merging primitive DCSs into more general ones, which may then be used as matching targets against XML queries (compare to "an XSD inference engine, the XSD inference engine accepting the XML document as input to process the XML document to infer an XML schema definition"). See page 182, DCS Basic Operations.

The reference does not explicitly state the utilization of an inference engine, however, Kotsakis discloses a method of organizing semi-structured schemata in a hierarchical way and it may be viewed as a meta-schema organization (infer an XML schema). The XSD approach is based on clustering XML schemata rather than on classifying semi-structured sources such as

XML documents. It would have been obvious to one of ordinary skill in the art, having the meta-schema organization methods of Kotsakis to provide an author with the ability to aggregate similar XML schemata into a merger schema allowing faster query processing.

The reference fails to describe a method for adding the schema to a collection and modifying the schema, however, the reference to Feng discloses a validation method which compares XML documents with XML schemas. The validation step involves determining what elements are contained and what elements are missing. See Feng, [0049] through [0055]. The schema is modified based on the examination process. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the generic XML schema of Kotsakis to include the schema modification methods of Feng, because it would have improved the organization of semi-structured schemata in a hierarchical way.

In reference to dependent claim 2, Kotsakis teaches:

Figure 4(a) shows a merger DCS, which is obtained by merging the DCSs in Fig. 4(b) and (c). The merger DCS contains the union of the elements in the simpler DCSs. A merger DCS may be viewed as a bounding structure that unifies simpler DCSs. See Kotsakis, page 175.

In reference to dependent claim 3, Kotsakis teaches:

Algorithm 3.1 shows how to find whether a DCS tree matches a parameterized path expression. If a matching path is returned by Algorithm 3.1, then the parameterized path expression is matched against the DCS.

In reference to dependent claim 5, Kotsakis teaches:

A merger DCS depicts a generic XML schema which combines two or more simpler DCSs. The introduction of the concept of merger DCS aims at limiting the initial search space by

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merging primitive DCSs into more general ones, which may then be used as matching targets against XML queries (compare to “an XSD inference engine, the XSD inference engine accepting the XML document as input to process the XML document to infer an XML schema definition”). See page 182, DCS Basic Operations.

In reference to dependent claim 6, Kotsakis teaches:

In a filter-and-refine XML query execution, the XSD access method restricts the search to a subset of XML documents, which is usually a subspace of the entire corpus. See Kotsakis, page 199.

In reference to claims 7-18, the claims recite similar limitations for performing the schema inference methods found in claims 1-6. Therefore, the claims are rejected along the same rationale.

In reference to claims 19-22, the claims recite the system comprising computer readable instructions used for performing the methods as claimed in 1-6. Therefore, the following claims are rejected along the same rationale.

Response to Arguments

11. Applicant's arguments with respect to claims 1-3, 5-22 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

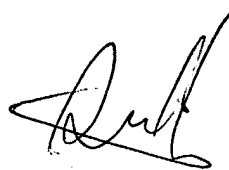
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Ludwig whose telephone number is 571-272-4127.

The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hong can be reached on 571-272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ML



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